

"PROCESSING"
**EQUIPMENT REQUIREMENTS
FOR CARRIER BASED
OPERATION**

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TABS

SUMMARY

1. SUMMARY

Investigation has shown that certain items of equipment and operating supplies are required to augment the present equipment available aboard certain carriers for carrier based "B" mission operations.

The EH-38A processors (Versamats), presently on board, will handle the processing aspect of the program, but other auxiliary equipment necessary to presplice, title, lacquer, clean, print and inspect 9-1/2" material along with the manifold operating supplies, film and chemicals will be required.

Items of equipment, their cost, availability, weight and cube are found in Section II. The spare parts (including those for the EH-38A processors) and operating supplies cost, weight and cube are found in Section III. Section IV shows the possibility of using GFE trailers for operational enclosures.

Total estimated cost, cube and weight for support of this program, based on 3 missions (without resupply) processing either the ON, making 1 untitled dupe or 1, 2, 3 duplicate copies of each mission are indicated on the following sheet.

The major difference in cost, weight and cube is primarily due to the additional film and chemicals required for each mission for the 1, 2 or 3 copies and differences in equipment between processing only the ON, making one Untitled Dupe copy and making Titled Dupe copies.

Having very little experience in the use of the MC-2 trailer, we have not included in the total estimated costs any figure for either the procurement of or modifications for the trailers to enable them to be used with the specified equipment. It is assumed that the trailers are available and can be obtained as an item of Government Furnished Equipment. However, it is felt that an additional funding of \$20,000 (ROM) would be required to provide the necessary monies for engineering, labor and materials to modify the three trailers according to the layout in Section IV.

Further, the necessary manpower [REDACTED] to operate the equipment and to support 3 missions in a period of 30 days would be an additional sum of some \$35,000 - \$38,000 per month.

STATINTL

BASED ON 3 MISSIONS W/O RESUPPLY

	Process ON only	Process on & 1 untitled DP	IDP	Process ON & Title 2DP	3DP
Costs (Dollars)					
Equipment	20,350.00	42,850.00	79,550.00	79,550.00	79,550.00
Spare Parts	6,705.41	9,205.42	19,484.53	19,484.53	19,484.53
Supplies	2,773.37	2,773.37	2,773.37	2,773.37	2,733.37
Chemicals	1,053.88	1,926.99	1,988.10	2,632.97	3,277.84
Film	3,260.45	12,861.92	12,861.92	20,999.92	29,037.92
Total	34,143.11	69,617.70	116,657.92	125,440.79	134,123.66

Weight (pounds)

Equipment	3,327	4,527	7,449	7,449	7,449
Spare Parts	742	942	1,287	1,287	1,287
Supplies	765	765	765	765	765
Chemicals	2,872	4,720	4,900	6,532	8,166
Films	936	3,106	3,106	4,981	6,856
Total	8,642	14,060	17,507	21,014	24,523

Cube (cubic feet)

Equipment	379	556	889	889	889
Spare Parts	66.2	93.2	140.2	140.2	140.2
Supplies	145	145	145	145	145
Chemicals	59.8	98.8	102.4	135.9	170.0
Film	87.5	168.1	168.1	218.1	268.1

Total	337.5	20,061.16	1,444.5	1,528.2	1,612.3
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EQUIPMENT

II. EQUIPMENT

The following list of equipment is that which is necessary to provide for complete processing of the ON, titling of the ON and duplication of the ON.

<u>Item</u>	<u>Quantity</u>	<u>Cost/Items</u>	<u>Total Cost</u>	<u>Availability</u>	<u>Replacement</u>
*Table, Presplice	1	\$ 4,000	\$ 4,000	On Hand	Yes
*Dolly, Spool	1	800	800	On Hand	No
*Magazine, A-9	8	GFE	GFE	GFE	--
*Table, Inspection	2	5,000	10,000	On Hand	No
*Table, Sensitometer EGG	1	1,500	1,500	Mfg-45 days	No
*Densitometer, RT	1	150	150	Purchase	No
*Table, Tacky Roller Cleaning	1	3,500	3,500	Mfg-45 days	No
*Refrigerator	1	400	400	Purchase	No
(1) Enlarger, Durst	1	5,000	5,000	Purchase 45 Days	No
**Printer, Niagara, 9.5"	1	22,500	22,500	On Hand	Yes
***Titler, Dual Head w/Air Compressor	1	21,000	21,000	On Hand	Yes
***Cleaner-Waxer- Lacq.	1	10,000	10,000	On Hand	Yes
***Table, Cleaner- Waxer-Lacq.	1	700	700	On Hand	Yes

Summary for Equipment:

Cost	-	\$79,550
Weight	-	7,499
Cube	-	899

- (1) This item suggested in event PI's require enlargements for detail study. It will not, however, fit into trailers being recommended.

Equipment	Quantity	Floor Space Required	Operating Weight	Operating Dimensions	Shipping Weight	Shipping Cube	Shipping Dimensions
*Table, Presplice	1	5' x 10'	275	60"x30"x48"	612	78	66"x38"x54"
*Dolly, Spool	1	Included in Presplice area	45	33"x18"x28"	175	18	39"x24"x36"
*Magazine, A-9	8	--	15	16"x19"x14"	40	4.8	20"x24"x18"
*Table, Inspection	2	6' x 8'	280	68"x30"x40"	575	65	74"x33"x46"
*Table, EGG Sensitometer	1	5' x 5'	50	36"x23"x13"	125	9.9	40"x24"x18"
*Densitometer, EK Model RT	1	--	10	9"x9"x10"	20	1	12"x12"x12"
*Table, Tacky Roller Cleaning	1	6' x 7'	355	60"x30"x48"	575	74	67"x34"x56"
*Refrigerator	1	3' x 3'	250	24"x30"x60"	350	30	30"x34"x64"
Enlarger, Durst	1	7' x 7'	352	35"x39"x110"	600	112	90"x48"x48"
**Printer, Niagara, 9.5"	1	9' x 9'	1,030	60"x34"x73"	1200	177	80"x50"x84"
***Titler, Dual Head w/Air Compressor	1	7' x 8' 3' x 3'	382 200	42"x28"x48" 36"x36"x36"	727 325	64 33	50"x38"x58" 40"x40"x40"
***Cleaner, Wax-Lacq.	1	8' x 9'	455	64"x27"x51"	885	78	71"x37"x51"
***Table, Cleaner-Wax- Lacquerer	1	--	200	66"x30"x30"	385	46	71"x34"x33"
					7499	889	

All dimensions, weights and cube are for individual items of each type of equipment.

* Equipment required for ON Processing

** Additional equipment required for release of title CIA-RDP74B00836R000300170001-9

*** Additional equipment required for titled Dupe

*Mosby: I have one copy**2ndal*
for your
carrier
file
3/11

17 July 1963

Dear Jim:

As promised, I am sending you three copies of a tentative plan for the equipment needed for carrier based operation. Included is a very brief study of the possibility of using GFE trailers in the event the ASSC or similar area is not available. In formulating the trailer concept, we have assumed that the hangar deck or readily available storage area might be "hot" at certain times, such as at anchor in a tropical harbor and have, therefore, assumed a need for a "supplies" trailer. If it can be ascertained that the hangar deck area (aft near the planned operation) stays below 80 to 85°F, we could erect a "canvas" room for the supplies (or use part of the vehicle room).

We have had no experience with the MC-2 but the pictures and description indicate it is adequate.

In spite of the quoted \$79,550 for equipment, we feel that there are three pieces we could spare without replacement. These are indicated in section II as being on hand and replacement not required. Therefore the actual cash outlay for the first installation would be \$10,800 less. All of this comes from the basic equipment to process the ON. The deduction can, therefore, be made from each of the five cost columns. Weight and cube reductions can be figured similarly.

Weights and cubes are given as if crated separately (i.e., no trailers). Of course if you send us the trailers in advance, we can mount everything here so that it becomes a "plug-in" operation. Under such conditions, the trailers might weigh 14,000 pounds each plus or minus so check the ability to lighter and hoist if they are not put aboard at the dock.

I have indicated previously to you that costs of film and chemicals are based on three missions. These two line items may, therefore, be divided by three to obtain variable costs per mission.

By the same token, the weights and cubes were based on three missions without resupply. Therefore the line items for film and chemicals could be reduced if resupply is possible at more frequent intervals.

-2-

I have tried to be flexible in our thinking and to give you some alternate choices. If you desire more information, please let us know.

ELG:atr


E.L.G.

Orig. J.C.
cc 1-2 J.C.

SUPPORT ITEMS

III. SUPPORT EQUIPMENT

A. Support items for the equipment required consist of the following categories:

1. Spare Parts
2. Operating Supplies, expendable, general
3. Operating Supplies, expendable, chemical and films.

In general, the category of spare parts and operating supplies, expendable, general are established at a minimum level commensurate to storage facilities and availability. The last category, operating supplies expendable, chemical and film is based primarily on the number of missions involved and the number of copies of each mission required. It has been assumed for purposes of logistics and costing that three (3) "B" missions will be flown with 3 duplicate copies required before restocking is necessary.

B. Cost Summary for Support items is as follows:

1. Spare Parts

*a.	EH-38A Processors (2 sets)	6,190.80
*b.	Table, Presplice	146.00
*c.	Dolly, Spool	---
*d.	Magazine, A-9	---
*e.	Table, Inspection	225.00
*f.	Table, Sensitometer EGG	50.01
*g.	Densitometer, RT	2.01
*h.	Table, TR Cleaning	91.60
*i.	Enlarger, Durst, V-184	150.01
**j.	Printer, Niagara, 9.5"	2,500.01
***k.	Titler, Dual Head	9,394.99
***l.	Cleaner-Waxer-Lacquerer	743.21

Cost - \$19,484.13 Weight - 1287 Cube - 140.2

* - Required for ON Processing
 ** - Required for ON and Untitled Dupe
 *** - Required for ON and Titled Dupe

2. Operating Supplies, expendable, general

Weight - 765 lbs. Cube - 145 cu. ft. Cost - \$2,773.37

3. Operating Supplies, expendable, chemicals and films.

Chemicals

	<u>Quantity</u>	<u>Type</u>	<u>Used On</u>	<u>Price</u>
a.	20 pkgs.	Versamat Type A Dev 20 gal. size	ON	\$ 608.00
b.	40 pkgs.	Versamat Type B Dev 20 gal. size	DP	1128.00
c.	75 pkgs.	Versamat Type A Fixer 20 gal. size	ON&DP	1075.50
d.	9 pkgs.	Versamat Type A Dev Starter	ON	20.43
e.	24 pkgs.	Versamat Type B Dev (8-1/2 gal.)	DP	208.44
f.	5 lbs.	Potassium Bromide	ON&DP	3.00
g.	2-1/2 gal.	Photo-flo	ON&DP	13.00
h.	5 gals.	Lacquer	DP (Titled)	25.00
i.	10 cases	Tank Cleaner	ON&DP	151.20
j.	5 gals.	Wax Solution	DP (Titled)	31.26
k.	5 gals.	Tri-chlorethylene	DP (Titled)	4.85
l.	2 qts.	Film Cleaner	ON&DP	6.38
m.	1 gal.	3A Alcohol	ON&DP	3.00

Weight - 8166 lbs., Cube - 170 cu. ft., Cost - \$3,277.84

Film & Spools

	<u>Quantity</u>	<u>Type</u>	<u>Used On</u>	<u>Price</u>
a.	300 rolls	Film Aerial, 9-1/2" wide, 500 feet long, emulsion 5427	DP	\$24,414.00

	<u>Quantity</u>	<u>Type</u>	<u>Used On</u>	<u>Price</u>
b.	3000 ft.	9-1/2" Flashed Stock, emulsion 8402	ON	639.30
c.	5000 ft.	9-1/2" N.G. Stock	ON&DP	570.00
d.	5000 ft.	9-1/2" Ident Stock	ON&DP	875.00
e.	500 ft.	9-1/2" Black Aero Leader	ON&DP	50.00
f.	2000 ft.	9-1/2" Scratch Check Stock, emulsion 5427	DP	362.86
g.	100 ft.	Exposed H&Ds, emulsion 5427	DP	11.50
h.	100 ft.	Exposed H&Ds, emulsion 8402	ON	14.00
i.	250 ft.	Control Stock, emulsion 5427	DP	45.36
j.	500 ft.	Control Stock, emulsion 8402	ON	106.55
k.	8 rolls	Film, Aerial, 70mm wide x 1000 ft. long, emulsion 5427	DP	504.00
l.	120	9-1/2" x 500 feet Spools & Cans	ON	825.60
m.	25	70mm x 500 feet Spools, Cans and Cartons	ON&DP	179.75
n.	40	9-1/2" x 1000 feet Spools & Cans	ON&DP	360.00

Weight - 6856 lbs., Cube - 268.1 cu. ft., Cost - \$29,037.92

TRAILER
UTILIZATION

IV. TRAILER UTILIZATION

The utilization of trailers for the dry handling operations involved in the processing of "B" type missions aboard carriers seems entirely feasible.

The trailer that appears practical, within the scope of our meager knowledge, to fulfil the equipment placement requirements is the Air Force Type MC-2. In general the specifications for this type unit are as follows:

Dimensions

External (on wheels)	-	26' 8"	Long
		8' 0"	Wide
		11' 0"	High

Internal (Rear to step)	-	18' 0"	Long
		7' 5"	Wide
		6' 4 5/8"	High

Internal (Step to Front)	-	8' 0"	Long
		7' 5"	Wide
		5' 7 1/2"	High

Weight - Approximately 9900 lbs.

Cargo Capacity - 12,000 lbs.

Air Conditioners -

Size	59" Long x 38" Wide x 58" High
Weight	1600 lbs.
Air Circ.	1600 - 2400 cu. ft./min.
Fresh Air Cap.	120 cu. ft./min.
Electrical Req.	208 V, 3 phase, 4 wire 60 cycle AC, 38 Amp, 11.5 KW.

One trailer would be used for all darkroom operations, i.e., "B" roll breakdown, presplicing, printing, sensitometry and raw stock makeup for the printer and a second would be used for the white light operations, such as ON inspection, titling, lacquering, cleaning, densitometry and dupe film inspection. The third trailer would be primarily for raw film storage (including original mission flight material) and spare parts with a small space for packaging of materials for shipment. Chemicals and large bulk items would be stored external to the trailers.

In the event that it is only desirable to process the ON and eliminate the processing of duplicate materials, the necessary equipment can be handled in one trailer with a second used for support material storage including chemicals. By eliminating one piece of equipment (the tacky roll cleaner) we feel that we could also make an untitled DP with just one equipment trailer.

Each of the trailers is equipped with its own air conditioner and would only require modification for power distribution and equipment location within the trailer itself. Since the equipment involved does not require water, plumbing and sewers, etc. are not necessary.

The illustration indicates a tentative layout of equipment that fulfills the requirements of the program. It should be noted, however, that the head height of these trailers (6'4" in main body and 5'7" on air conditioner platform) prohibits the use of the type of enlarger required to handle 9-1/2" material.

The power required for the equipment and air conditioner for each trailer is estimated as follows:

Trailer #1 - Dark room equipment

Air Conditioner	-	208V, 3 phase, 4 wire, 60 cycle AC, 38 amps, 11.5 KW
Lighting	-	110V, 60 cycle AC, 600 watts
Equipment	-	110V, 60 cycle AC, 2150 watts
All standard 20 amp receptacles		

Trailer #2 - White light equipment

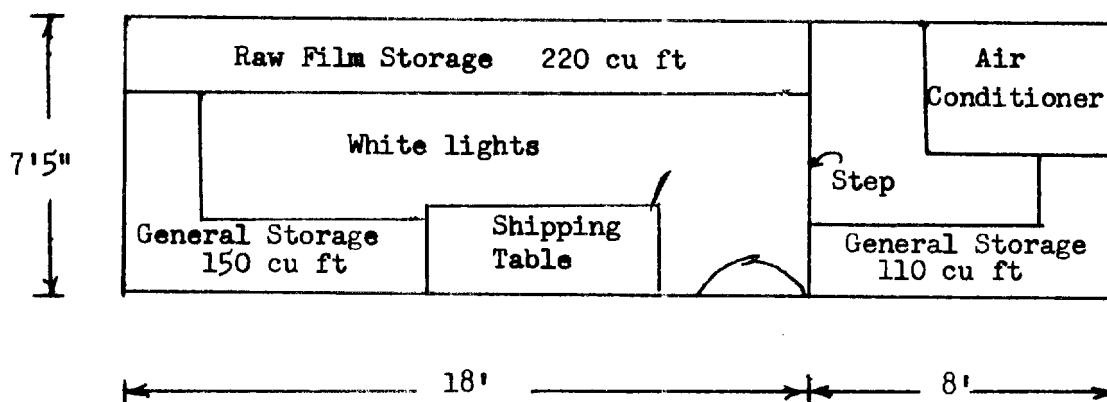
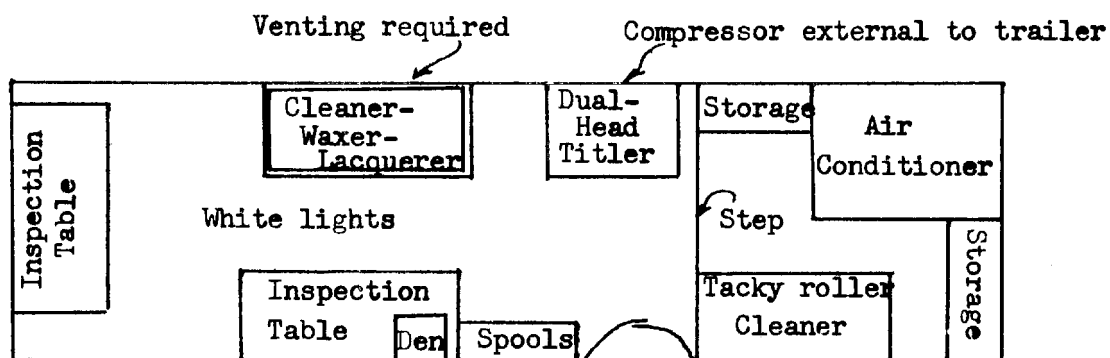
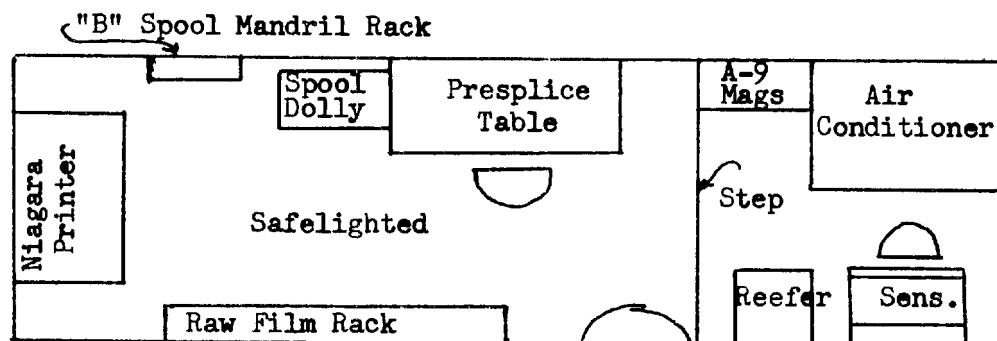
Air Conditioner	-	208V, 3 phase, 4 wire, 60 cycle AC, 38 amps, 11.5 KW
Lighting	-	110V, 60 cycle AC, 600 watts
Equipment	-	110V, 60 cycle AC, 4400 watts
All standard 20 amps receptacles		

Trailer #3 - Shipping and Storage

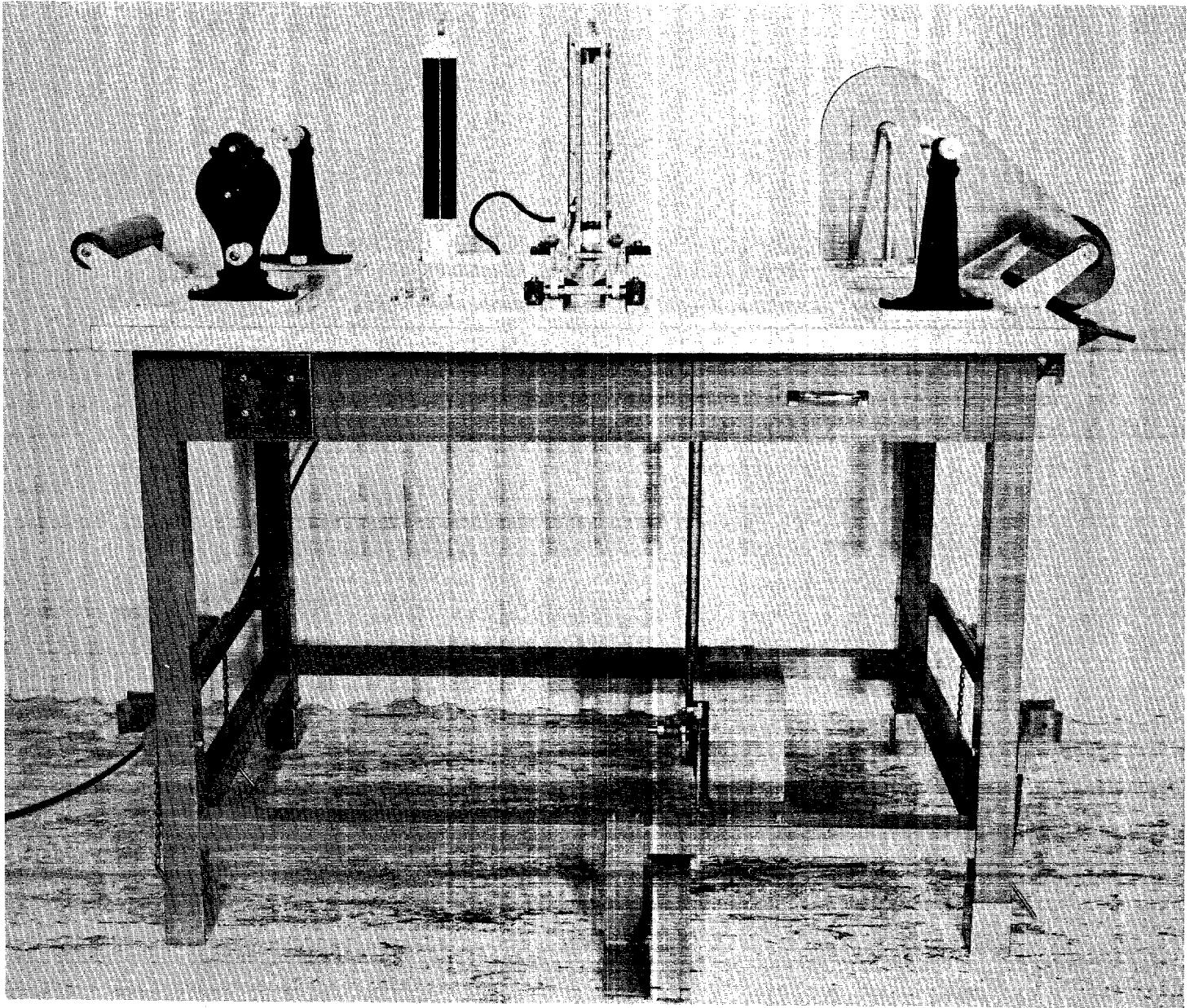
Air Conditioner	-	208V, 3 phase, 4 wire, 60 cycle AC, 38 amps, 11.5 KW
Lighting	-	110V, 60 cycle, 600 watt
Utility outlets	-	110V, 60 cycle, 20 amps

It is expected that these trailers may be procured as items of GFE and be modified as required upon procurement.

UTILIZATION OF MC-2 TRAILERS



ILLUSTRATIONS



FILM PRE-INSPECTION AND PRE-SPLICE TABLE
CAT. NO. 012-66-26

FILM PRE-INSPECTION AND PRE-SPICE TABLE**PURPOSE:**

The Film Pre-inspection and Pre-splice Table is used for pre-process inspection of exposed rolls of photographic film and for pre-splicing short rolls into a continuous roll.

GENERAL DESCRIPTION:

The unit consists of a desk height table with white Formica top on a gray steel framework, hand operated adjustable rewind on the left, heat seal splicing unit and a motor driven take-up film spindle on the right.

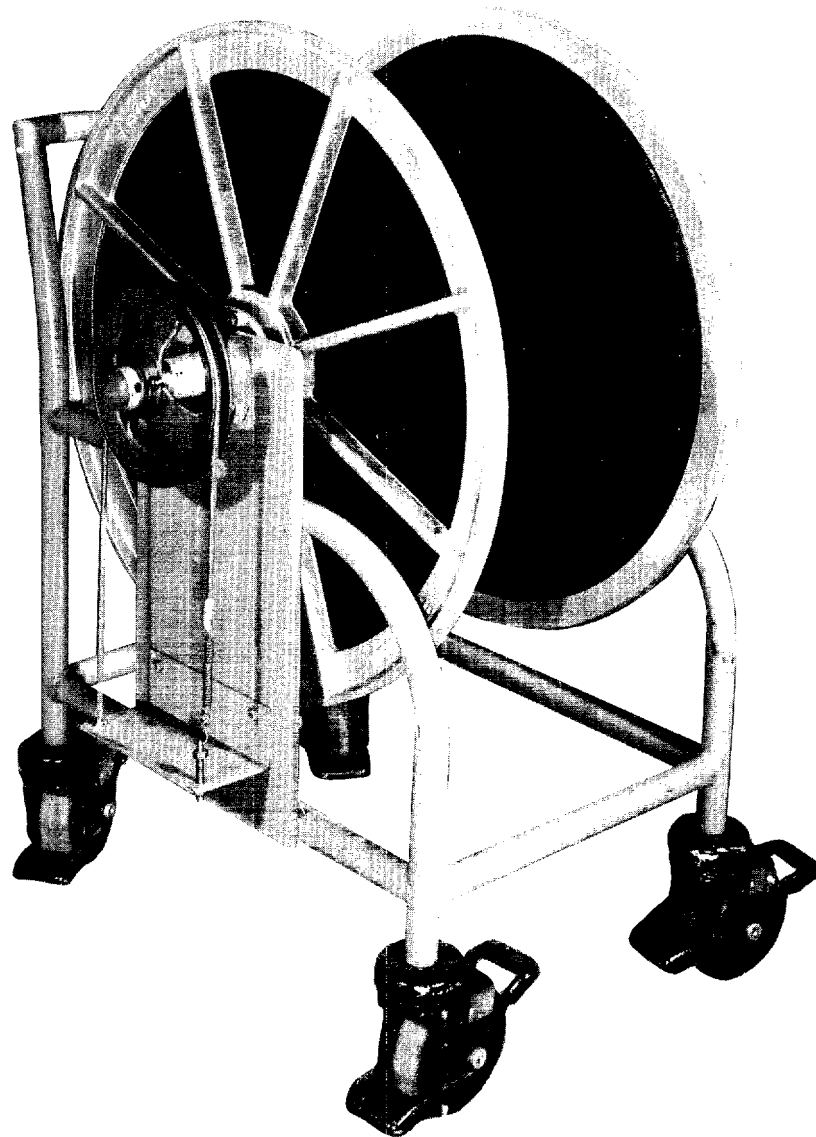
The adjustable rewinds located at either end makes the table adaptable to film widths from 70mm to 9-1/2 inches. The right hand film spindle is power driven and is activated by a foot switch. The speed of the spindle is also variable. This too is controlled by the foot switch.

Mounted to the top of the table is a heat seal splicing unit which allows the joining of film strips into a continuous roll.

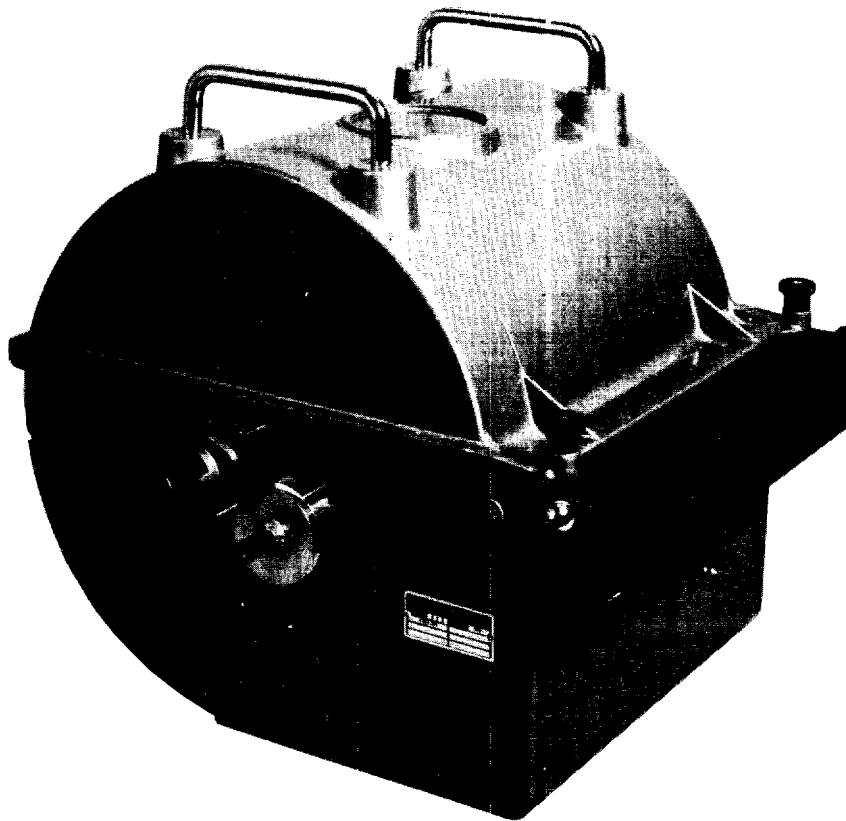
Spool dollies may be attached to either end of the table allowing the handling of large diameter film spools.

SPECIFICATIONS:

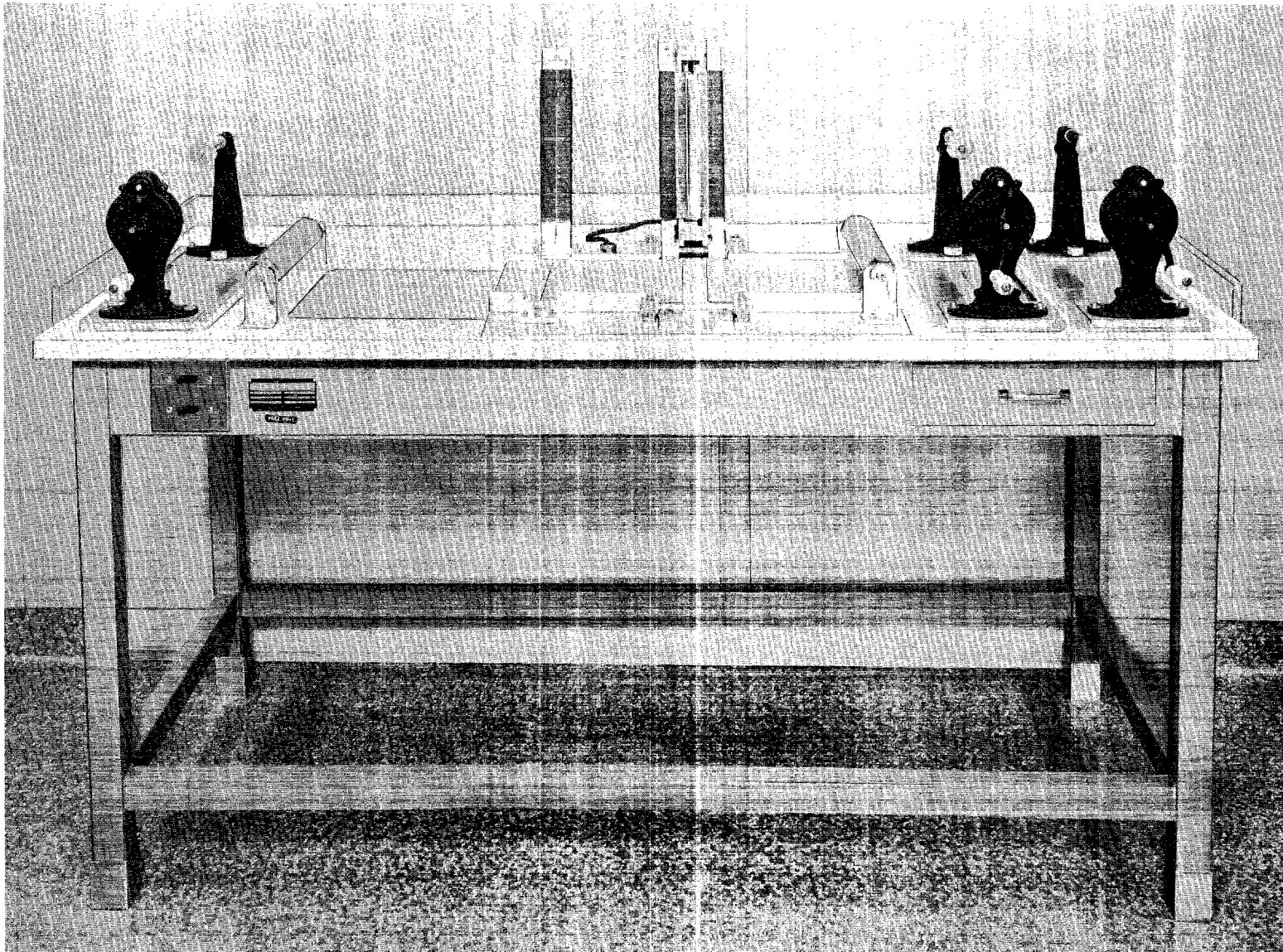
Material Handled	Unprocessed Aerial Film
Operating Area Illumination	Approved Safelights
Speed	Variable
Dimensions	60 inches long, 30 inches wide, 40 inches high
Weight	275 pounds
Power Consumption	115 vac 60 cycle 650 watts



SPOOL DOLLY



A-9A MAGAZINE



FILM INSPECTION AND SPLICING TABLE
CAT. NO. 012-66-69

CIA F. NO. 012-06-69

FILM INSPECTION AND SPLICING TABLE

PURPOSE:

The Film Inspection and Splicing Table was designed to inspect, edit and assemble roll film after processing.

GENERAL DESCRIPTION:

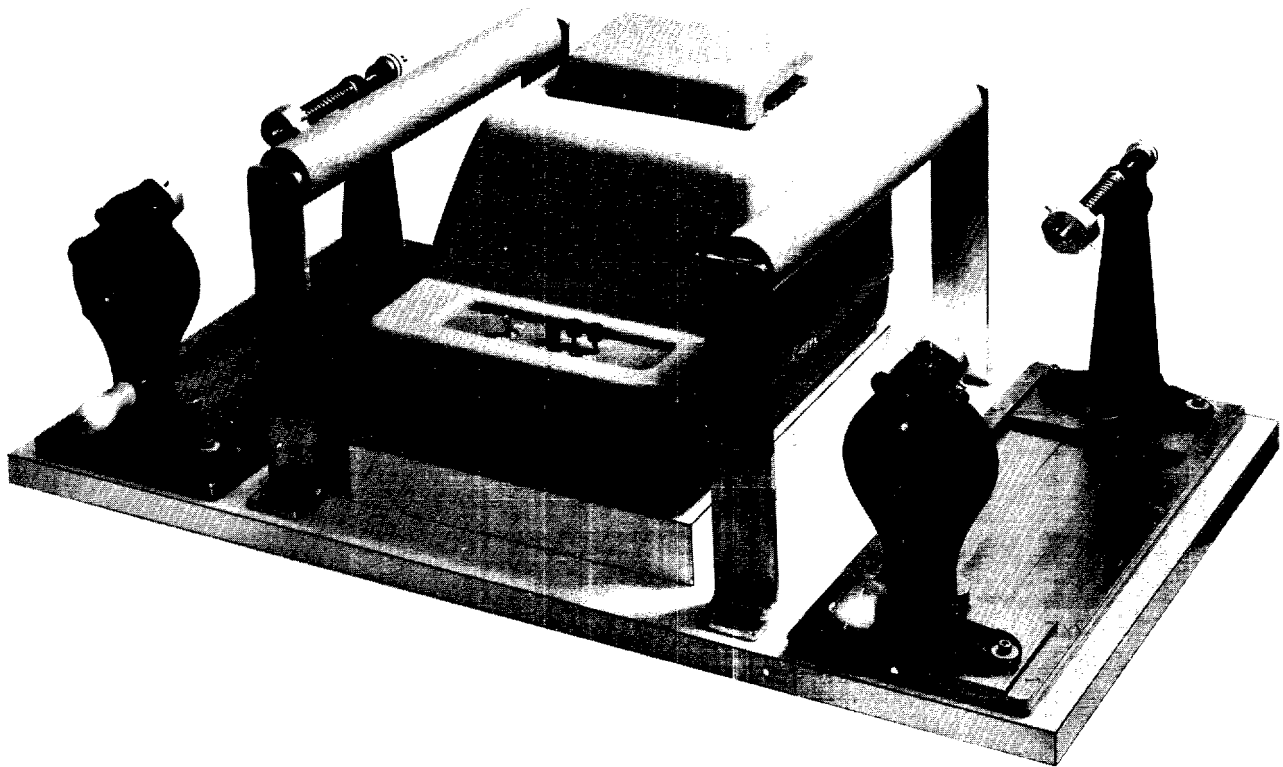
This unit is used for the initial inspection of processed roll film as it comes off the processing machine. The table utilizes three sets of adjustable rewinds enabling the use of any width material from 70mm to 9-1/2 inches. Also incorporated are a viewer and heat seal splicer.

As the operator winds the roll from left to right, he inspects the film using the viewer. If a section of film should be removed, the film is cut through the center of the frame line, using the knife on the splicing block, and then this section is taken out of the roll. The square cut ends are then butted together and the heat seal splicing tape is applied.

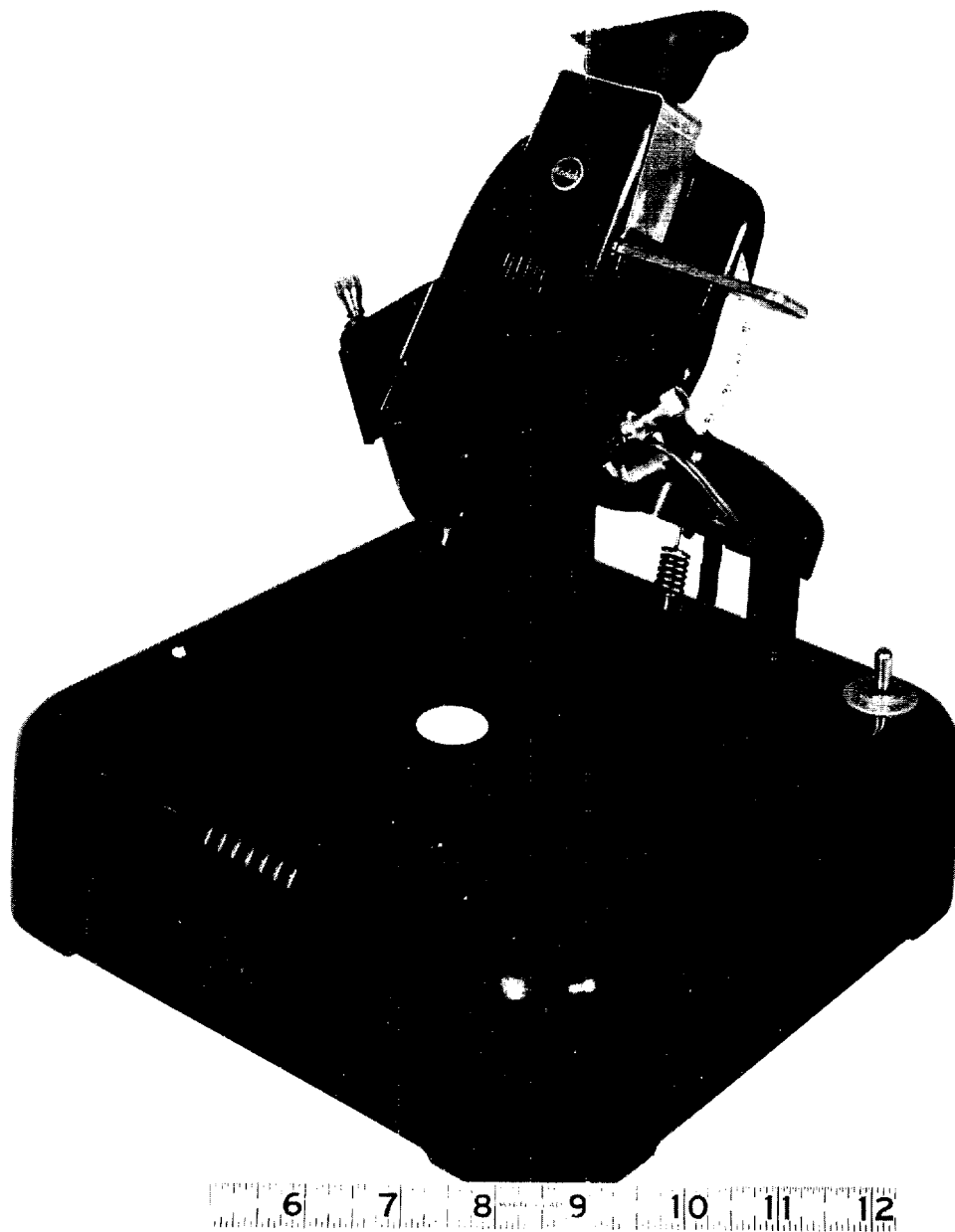
The set of adjustable rewinds to the extreme right hand side of the table are used to rewind inspected rolls if necessary.

SPECIFICATIONS:

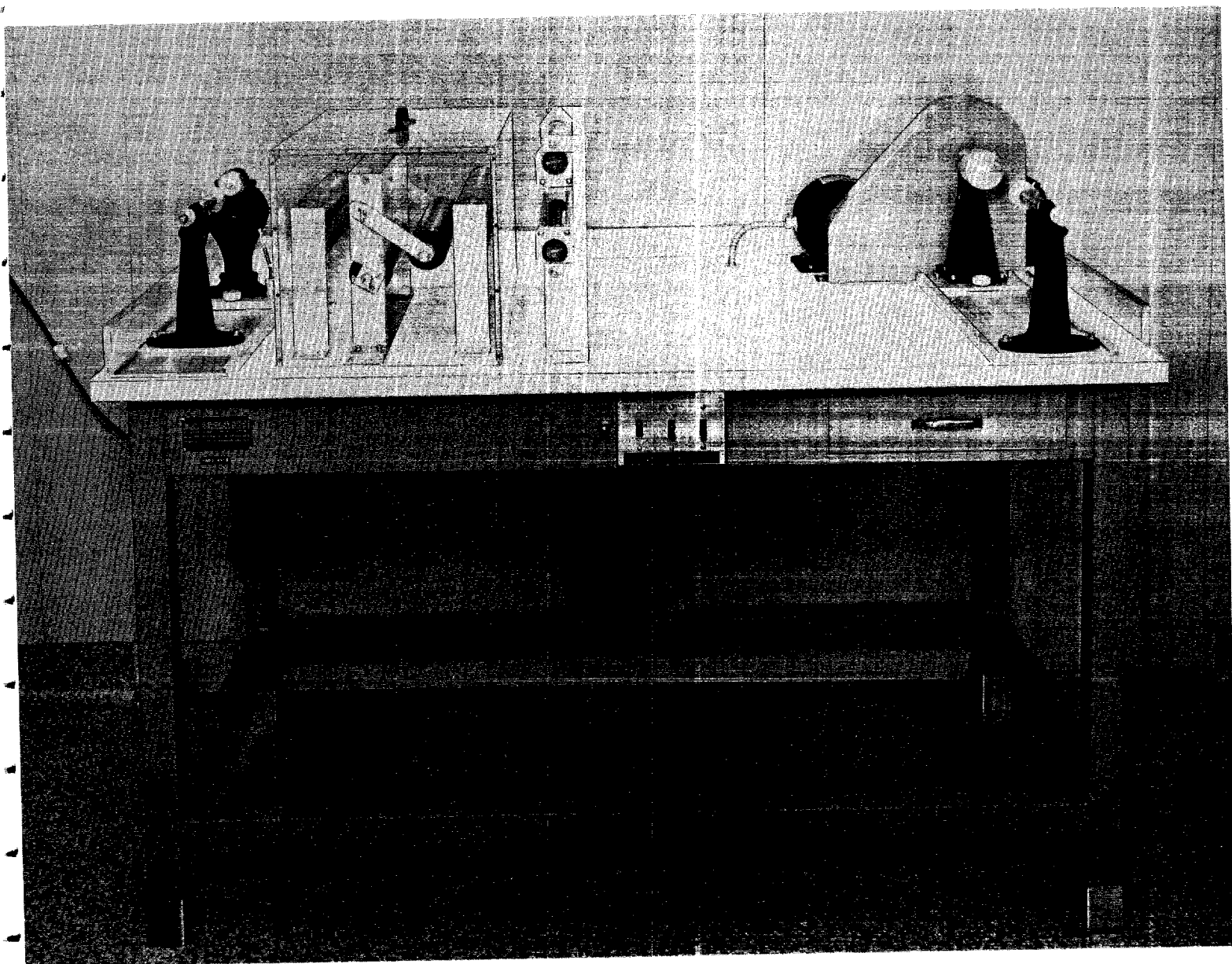
Material Handled	Processed Roll Film
Operating Area Illumination	White light
Dimensions	68 inches long, 30 inches wide, 40 inches high
Weight	280 pounds
Power Consumption	115 vac 60 cycle 450 watts



EGG SENSITOMETER TABLE



EASTMAN KODAK RT DENSITOMETER



TACKY ROLLER CLEANER
CAT. NO. 012-66-70

TACKY ROLLER CLEANER**PURPOSE:**

The Tacky Roller Cleaner is designed to remove dust and lint from film strips and to inhibit further dirt collection on the material by removing static from the material. Material from 35mm to 9-1/2 inches in rolls up to 1000 feet long can be handled.

GENERAL DESCRIPTION:

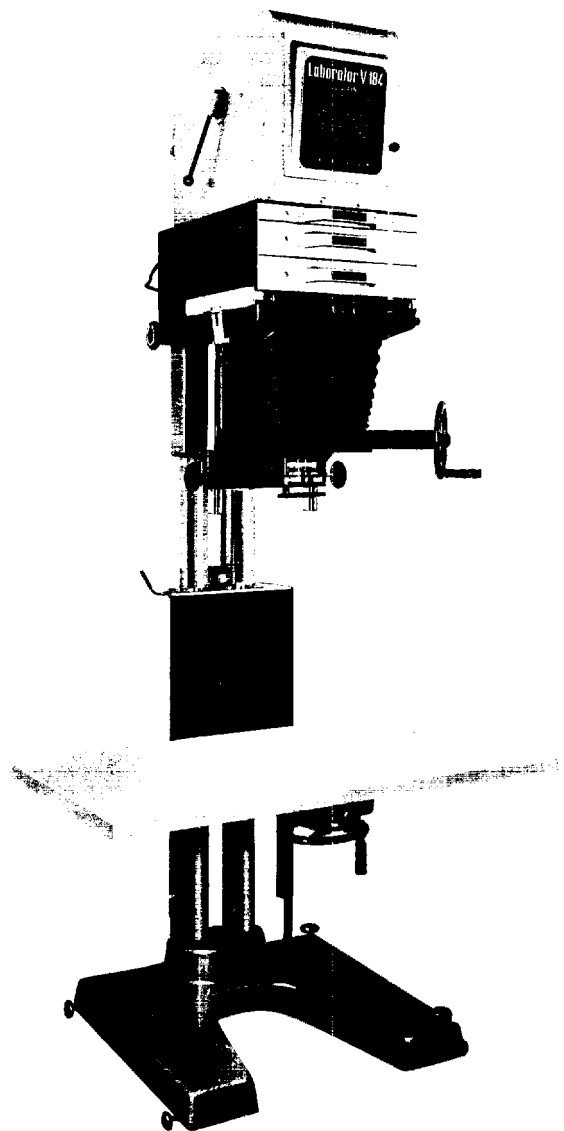
The table is supplied with (1) supply spindle and motor driven take-up spindle on adjustable plates, (2) two sets of guide rollers, (3) tacky rollers, (4) Takk instrument, (5) control switches and power-stat.

The film to be cleaned is mounted on the supply spindles at the left of the table. The film passes over the upper idler roller, back between the idlers and then forward below the lower idler roller, over the first and under the second tacky roller. The threading is reversed on the second set of idler rollers - that is, under the lower roller, back between rollers and then over the upper roller. The film feeds between the Takk instrument wands and onto the windup.

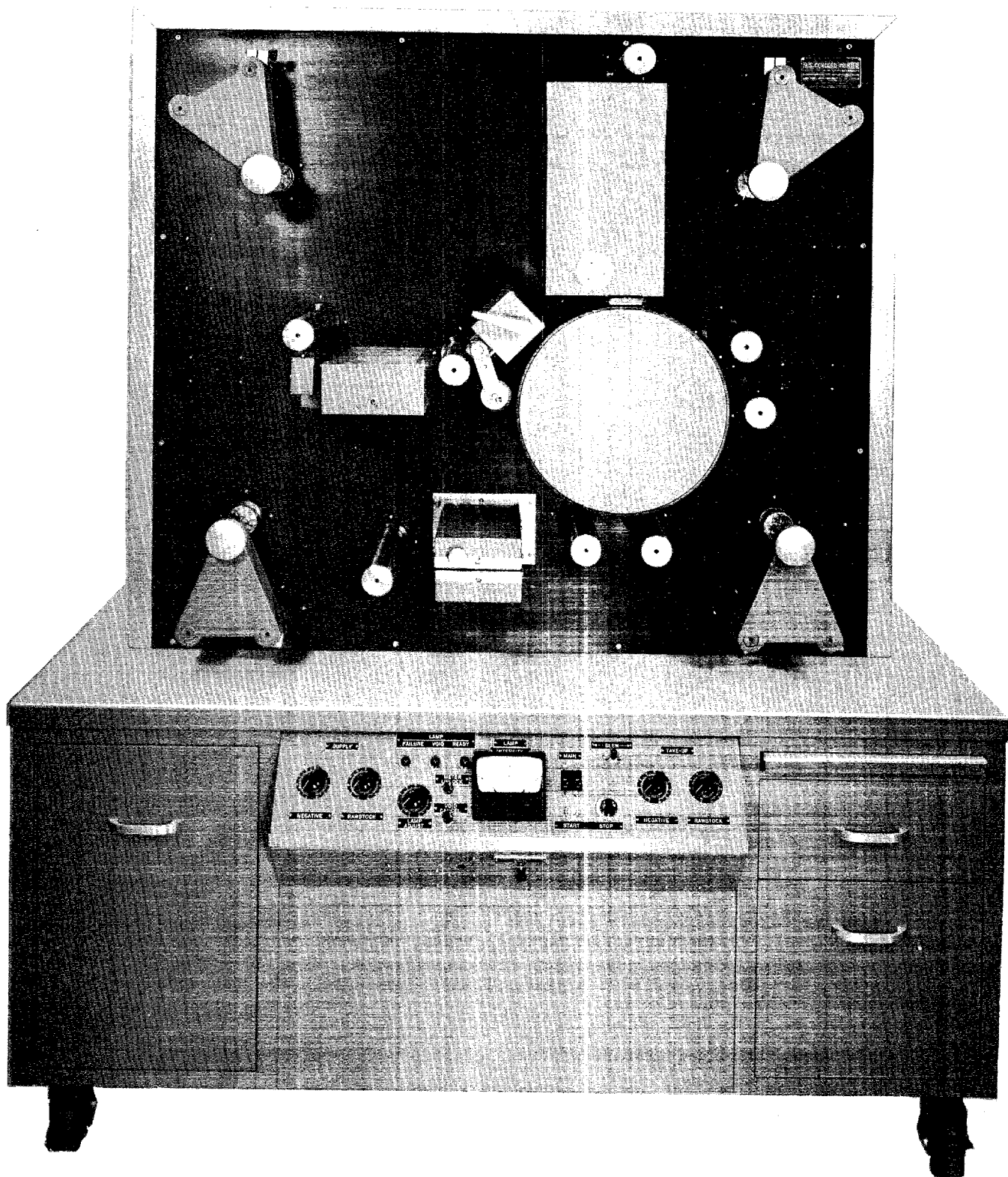
Film is run at a moderate, even rate to avoid re-creation of electrostatic charge at the take-up.

SPECIFICATIONS:

Material Handled	Processed Roll Film
Operating Area Illumination	White Light
Dimensions	60 inches long, 30 inches wide, 4 inches high
Weight	355 pounds
Power Consumption	115 vac 60 cycle 500 watts



DURST LABRATOR ENLARGER



CONTINUOUS CONTACT PRINTER, 9.5 INCH
(NIAGARA)
CAT. NO. 1-008-E-001

CA . NO. 1-008-E-001

CONTINUOUS CONTACT PRINTER, 9.5 INCH (NIAGARA)

PURPOSE:

The 9-1/2 inch Niagara Continuous Contact Printer is a high resolution, low distortion printer designed to produce duplicate films in continuous rolls from long lengths of original negative up to 1000 feet. The printer, designed for use under darkroom conditions, is capable of reproducing 70mm, 5 inch, 6.6 inch, 8 inch and 9.5 inch film wound on standard USAF Roll Film Aerial Spools.

The equipment is designed so that it is possible to print up to three widths of 70mm material on a single width of 9.5 inch raw stock (unexposed duplicating film).

GENERAL DESCRIPTION:

Base

The base for this printer is a steel, 60 inch desk reinforced to support the upper cabinet and all operating mechanisms and is equipped with large rollers on the bottom for easy mobility.

Two drawers and a single-door storage space with one adjustable shelf are provided in the base. The upper drawer is used to store the printing masks and the bias filter used during the printing operation.

Top Cabinet

Rigidly fastened to the desk top is the cabinet which supports the mechanism plate and houses the drive motor, torque motors, the power packs and blowers for the dust and static units and all electrical connections for the drive and exposure system.

Access to these components, which are mounted on the back side of the mechanism plate, is gained through the two doors on the rear of the cabinet. Both of these doors are provided with interlocks to remove all power from the cabinet when the doors are open.

- 2 -

Film Drive

The film drive consists of negative and raw stock supply spindles which are adjustable for the various film widths handled by the printer, guide rollers, the printing and driving drum and the take-up spindles for the negative and raw stock.

Film is driven by the large diameter printing drum which is coupled to a Bodine gear reducer motor.

Supply and take-up spindles for the original material and the raw stock are coupled to individual torque motors with rotation of the motors on the supply spindles in a direction opposite that of the motors on the take-up spindles. This arrangement provides proper tension on the film to and from the printing drum.

A part of the film transport system is the pressure roller located on the supply side of the printing drum. This roller compresses the film against the printing drum to remove the air between the two strands of material and the printing drum. Free turning rollers mounted on ball bearings are used to change the path on both the original negative material and raw stock.

Lamphouse

The lamphouse contains the 100 watt mercury printing lamp, the dark shutter of which opens when the start button is pushed, the photocell to monitor the printing lamp output, a knob-controlled variable neutral density filter, mounting surface for the various size printing masks, and a holder for insertion of a bias filter.

Dust and Static Removal Units

Both original and negative material and raw stock are cleaned of all dust and dirt particles before reaching the printing drum.

Original negative material passes over a static bar and a fixed camel's hair brush and is connected to the intake side of a centrifugal blower to remove dust and dirt particles from the emulsion side of the original negative material.

Raw stock passes through a unit comprised of two static bars and two rotating brushes that rotate opposite to the direction of film

- 3 -

travel. The entire unit is connected to the intake side of a centrifugal blower to exhaust the dust and dirt particles removed by the brushes from both sides of the raw stock as it passes through the unit.

All dirt and dust particles are collected in a storage bag connected to the blower units.

Viewer

The viewer is provided to permit the operator to examine the frame numbers on the original negative material when only specified sections of the original are to be printed, or if multiple copies of a particular section are to be made.

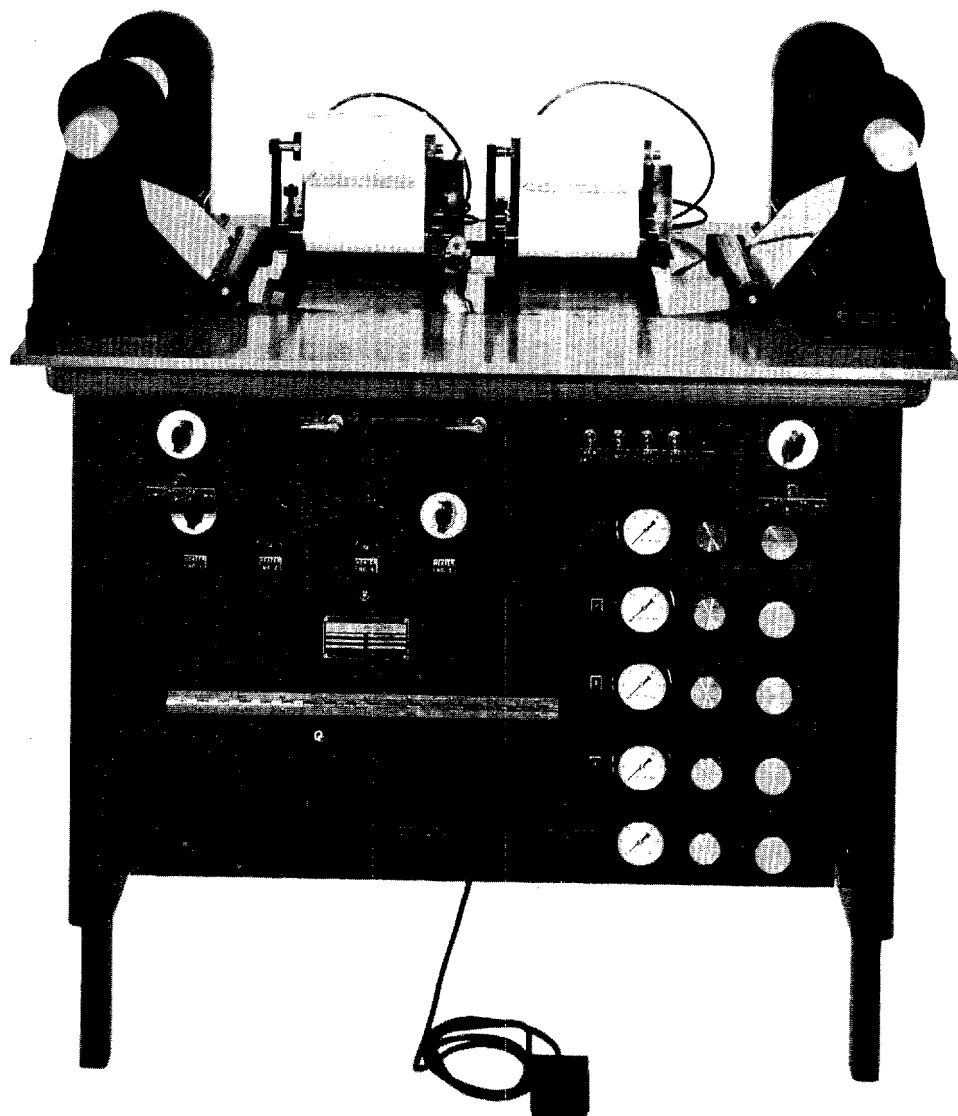
Control Panel and Electrical Chassis

The electrical control panel, mounted on the front of the base, contains all of the operating controls. This panel, slanted at 45° from the vertical for easier reading and control manipulation, contains: (1) the speed controls for the torque motors on both the negative and raw stock supply and take-up spindles, (2) main power switches, (3) Lamp intensity meter, (4) Lamp intensity control, (5) Start and Stop button, (6) slew switch, (7) meter unlock button, (8) Lamp interlock void and void cancel buttons, and (9) Lamp indicator lights.

The three electrical chassis for printer operation are enclosed in the center, rear section of the base. Access to these chassis can be gained by removing the center, rear panel on the printer base.

SPECIFICATIONS:

Materials Handled	Processed Roll Film - 70mm - 9.5" Unexposed Duplicating Film - 70mm - 9.5"
Operating Area Illumination	Approved Safelight
Operating Speed	60 feet per minute
Resolution Capabilities	300 - 350 l/mm (1000:1 contrast)
Dimensions	73 inches high, 60 inches long, 34 inches wide
Color	Jade Green
Weight	1030 pounds
Power Consumption	115 VAC 60 cycle 1000 watts



DUAL-HEAD PNEUMATIC TITLER
CAT. NO. 1-301-R-001

AT. NO. 1-301-R-001

DUAL-HEAD PNEUMATIC TITLER

PURPOSE:

The Dual-Head Pneumatic Titler, a pneumatic electrical device, was designed to apply coded title information, which repeats frame after frame, and sequential frame numbers in the clear unexposed area of processed film of any size between 70mm and 9-1/2 inches.

GENERAL DESCRIPTION:

This pneumatic machine is designed to title on the border of film, either numbers or wording up to six inches in length. Once set, the wording is repetitious, but the counter can be consecutive or duplicating.

Using heat and pressure, the titler applies preset titles to the edge of film by transferring white pigment from a coated tape.

Although equipped with two titling heads, it is possible to use only one head by turning off the controls to the head not needed.

The titling cycle is controlled by a Meadmatic Timer. This unit operates the air valves that actuate the pressure pads on the titling heads.

The film spool spindles are power driven by torque motors. The motors are reversible allowing the film to be fed from either direction.

The numbering and titling block are heated to a temperature of approximately 220°F. This heat softens the pigment on the tape allowing it to transfer to the film.

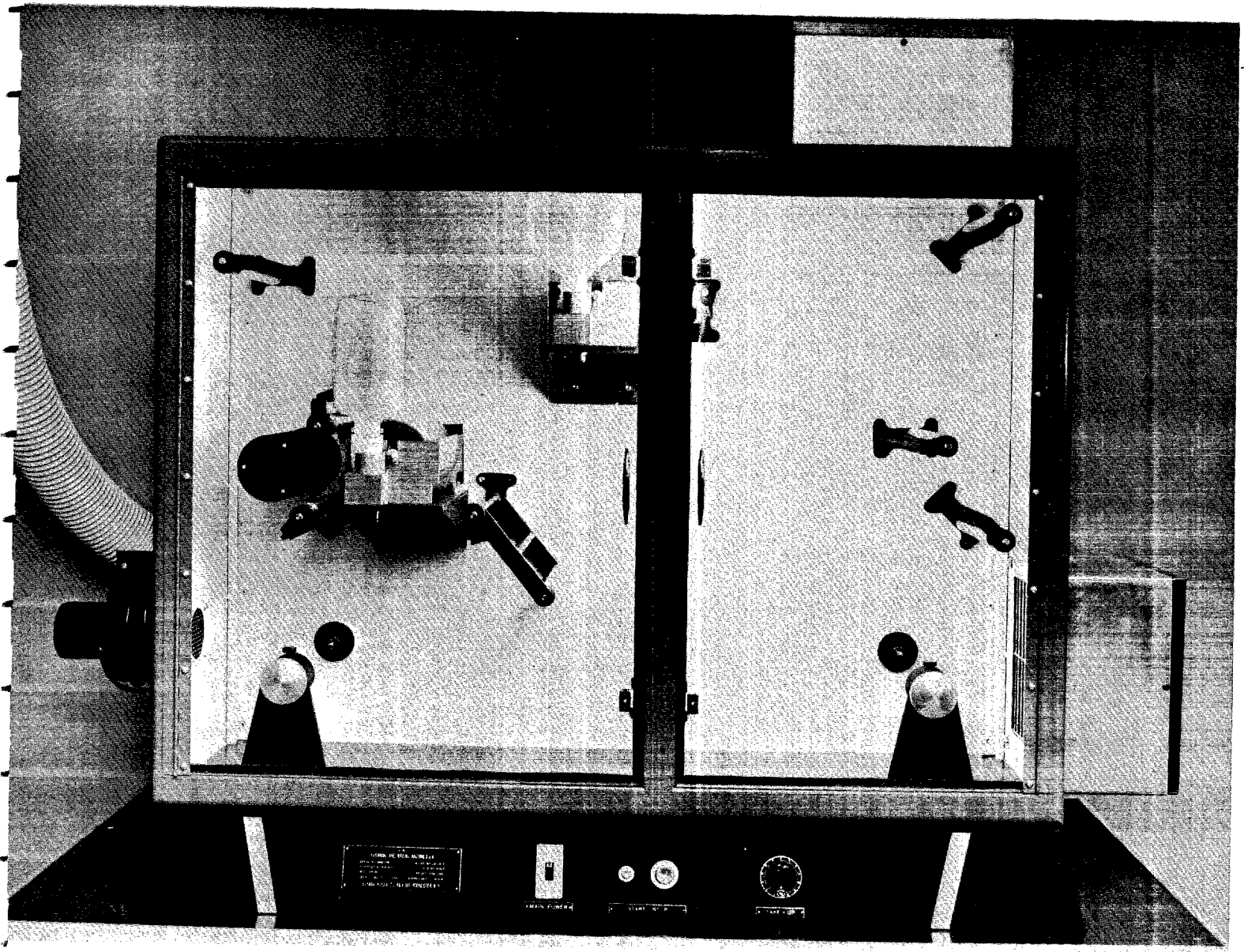
The titler is activated by a foot switch. By holding the switch down, the cycle is automatic producing a cycle every 4 seconds.

CAT. NO. 1-301-R-001

-2-

SPECIFICATIONS:

Material Handled	Processed Aerial Film
Operating Area Illumination	White light
Dimensions	42 inches long, 28 inches wide, 48 inches high
Weight	382 pounds
Compressed Air Requirement	40 PSI
Power Consumption	115 vac 60 cycle 1000 watts



FILM CLEANER WAXER, MODEL JB-CW-2
CAT. NO. 1-500-R-001

FILM CLEANER-WAXER, MODEL JB-CW-2**PURPOSE:**

The Film Cleaner-Waxer, Model JB-CW-2, was designed to clean and wax the emulsion and base surfaces of roll film. By using adaptors supplied with the unit, it may be utilized to clean and wax film from 70mm to 9-1/2 inches in width. A lacquering attachment is available on special order, as an accessory item to lay on a 3/8 inch wide lacquer strip over any original titling information along the edge of the film for protection.

GENERAL DESCRIPTION:

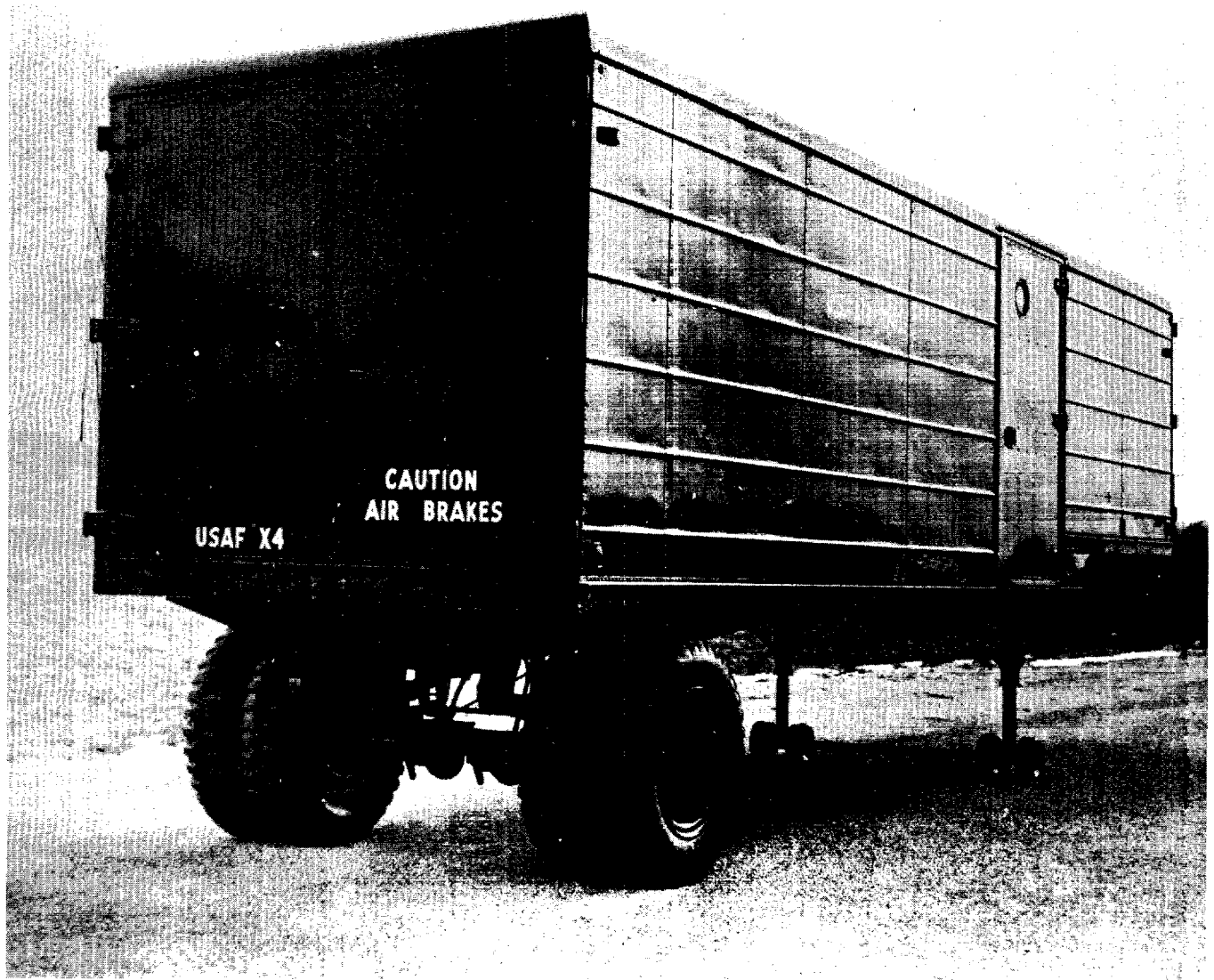
The film is cleaned and waxed by contact with two constantly saturated Nylon plush covered rollers revolving in the opposite direction to the film. The moving contact of the saturated plush on the film surface dislodges any surface dirt, flushes the dirt into the tray where it settles to the bottom of the liquid, and spreads an even coating of protective wax across the width of the film.

Adequate drying of the cleaned-waxed film is assured prior to contact with transport rollers and windup by the volatility of the cleaning solution, the movement of air through the cabinet and the length of the film path.

The solvents used in the cleaning solution require that the interior of the cabinet be vented outdoors. The cabinet is exhausted by a 140 CFM Pasco Blower.

SPECIFICATIONS:

Material Handled	Processed Roll Film
Operating Area Illumination	White light
Operating Speed	20 feet/minute
Cleaning-Waxing Solution	PE-Tetrastearate wax in 1, 1, 1-Trichloroethane
Dimensions	34" long, 27" wide, 50-1/2" high
Weight	155 pounds
Power Consumption	115 vac 60 cycle 400 watts



USAF TRAILER MC-2